Hingganite-(Y) $(Y, Yb, Er)BeSiO_4(OH)$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Stout prismatic crystals, to 1.5 mm, may be in fanlike to sheaflike aggregates; commonly granular.

Physical Properties: Hardness = [5–5.5] VHN = 415–467 D(meas.) = 4.42–4.57 D(calc.) = 4.45

Optical Properties: Transparent. *Color:* Milky white, light yellow, light green, light blue; colorless in transmitted light. *Luster:* Vitreous.
Optical Class: Biaxial (+). *Orientation:* $Y = b$; $Z \wedge c = 6°$–$13°$; $Z \wedge a = 14°$.
Dispersion: $r < v$, strong. $\alpha = 1.744$–1.748 $\beta = 1.753$–1.765 $\gamma = 1.765$–1.783
2V(meas.) = 80°

Cell Data: *Space Group:* $P2_1/c$. $a = 4.790$ $b = 7.545$ $c = 9.989$ $\beta = 91°$ Z = 4

X-ray Powder Pattern: Heilungkiang Province, China.
3.148 (10), 2.685 (10), 2.569 (6), 4.790 (5), 3.462 (5), 1.985 (5), 1.880 (5)

Chemistry:	(1)	(2)		(1)	(2)		(1)	(2)
SiO_2	25.20	26.43	Yb_2O_3		17.02	BeO	10.41	10.50
TiO_2	0.10		RE_2O_3		12.39	MgO	0.09	
Al_2O_3	1.70	0.10	Fe_2O_3	1.63	1.46	CaO	0.96	2.38
Y_2O_3	26.11	24.83	FeO	0.89		$(K, Na)_2O$	1.17	
Ce_2O_3	28.47		PbO	0.38	0.52	H_2O	2.94	[3.92]
						Total	100.05	[99.55]

(1) Greater Khingan Range, China; corresponds to $(Y_{0.33}Ce_{0.21}La_{0.16}Nd_{0.10}RE_{0.13})_{\Sigma=0.93}[(K,Na)_{0.07}Fe^{3+}_{0.05}Ca_{0.04}Fe^{2+}_{0.03}]_{\Sigma=0.19}(Be_{1.00}Al_{0.08})_{\Sigma=1.08}Si_{1.02}O_{4.38}(OH)_{0.80}$. (2) Kola Peninsula, Russia; by electron microprobe, H_2O by difference, $RE_2O_3 = Tb_2O_3$ 0.33%, Dy_2O_3 2.13%, Ho_2O_3 0.21%, Er_2O_3 6.47%, Tm_2O_3 1.38%, Lu_2O_3 1.87%. (3) Heilungkiang Province, China, by XRF and wet chemical analysis, analytical results not available; stated to correspond to $(Y_{0.33}Ce_{0.19}Nd_{0.10}La_{0.05}RE_{0.20}Fe^{3+}_{0.05}Fe^{2+}_{0.03}Na_{0.03})_{\Sigma=0.98}(Be_{0.97}Al_{0.03})_{\Sigma=1.00}(Si_{0.98}Al_{0.05})_{\Sigma=1.03}O_{4.00}[(OH)_{0.77}O_{0.23}]_{\Sigma=1.00}$.

Mineral Group: Gadolinite group.

Occurrence: In a RE, Be-bearing granophyre (Greater Khingan Range, China); in "amazonite"-rich pegmatite in a differentiated alkalic massif (Kola Peninsula, Russia).

Association: Aegirine, zircon, quartz (Mt. Malosa, Malawi).

Distribution: From an undefined locality in the Greater Khingan Range, Heilungkiang Province, China. In the Trimouns talc deposit, six km northeast of Luzenac, Ariège, France. From the [Keivy massif,] Kola Peninsula, and at Tastyg, Tuva, Russia. In the Tahara area, Gifu Prefecture, Japan. On North Sugarloaf Mountain, Bethlehem, Grafton Co., New Hampshire, USA. On Mt. Malosa, Zomba district, Malawi.

Name: Presumably for the occurrence in the Greater Khingan (Hinggan) Range, China, and predominance of *yttrium*.

Type Material: Geology Bureau, Chinese Academy of Geological Sciences, Beijing, China.

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